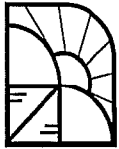


ATTACHMENT B



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PHOENIX CENTER POLICY BULLETIN NO. 4

24 June 2003

THE TRUTH ABOUT TELECOMMUNICATIONS INVESTMENT

Summary of Findings: An analysis of investment by telecommunications firms before and after the 1996 Telecommunications Act reveals substantial increases in the level of investment and capital stock for this sector following the enactment of this important legislation. There is no evidence that the 1996 Act reduced investment, and capital stock in the industry is at its historical peak. Indeed, the data shows some \$267 billion in additional investment, more than \$95.3 billion annually, in the five years following passage of 1996 Act. Despite recent declines in investment in the industry caused in part by the near total collapse of facilities-based CLECs, telecommunications investment remains well above historical levels.

I. Introduction

With the Telecommunications Act of 1996, Congress passed a statute "with the aim not just to balance interests between sellers and buyers, but to reorganize markets by rendering regulated utilities monopolies vulnerable to interlopers."¹ Even though consumers increasingly continue to see benefits resulting from the competition produced by the 1996 Act,² reports by organizations such as the Progress and Freedom Foundation, the New Millennium Research Council, and the Competitive Enterprise Institute all blame the 1996 Act for a supposed decline in telecommunications investment.³ None of these reports, however, provide anything akin to a

¹ *Verizon v. FCC*, 122 S. Ct. 1646, 1661 (2002).

² FCC Status of Local Competition Report (rel. 3 June 2003) (available at www.fcc.gov/wcb/stats).

³ Recent examples of Bell-funded reports include S. B. Pociask, *The Effects of Bargain Wholesale Prices on Local Telephone Competition: Does Helping Competitors Help Consumers?*, New Millennium Research Council and Competitive Enterprise Institute (June 2003) and J. A. Eisenach and T. M. Lenard, *Telecom Deregulation and the Economy: The Impact of UNE-P on Jobs, Investment and Growth*, Progress & Freedom Foundation, PROGRESS ON POINT, RELEASE 10.3 (Jan. 03).

(Footnote Continued....)

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5335 Wisconsin Avenue, NW, Suite 440

Washington, D.C. 20015

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thorough industry-wide analysis of the effects of the 1996 Act on investment by telecommunications firms.⁴ This POLICY BULLETIN attempts to accomplish this important task.

This Policy Bulletin employs data from the U.S. Bureau of Economic Analysis (www.bea.gov) to evaluate the effect of the 1996 Act on investment. The Bureau of Economic Analysis is responsible for collecting and presenting to the public massive amounts of economic data, including data on real investment and net capital stocks by industry sector. These detailed data can be used to evaluate the effects of the 1996 Act on the investment by (and the capital stock of) telecommunications firms. The data are available at no charge at the BEA website, and no adjustments are made to the data for this analysis.

An analysis of investment by telecommunications firms before and after the 1996 Telecommunications Act reveals substantial increases in the level of investment and capital stock for this sector following the enactment of this important legislation. There is no evidence that the 1996 Act reduced investment, and capital stock in the industry is at its historical peak. Despite recent declines in investment in the industry (caused in part by the near total collapse of facilities-based CLECs), telecommunications investment remains well above historical levels. These findings are consistent with the findings of the U.S. Supreme Court in its landmark decision of *Verizon v. FCC*, where the Court specifically held that the Bell monopolists' arguments that the 1996 Act, and TELRIC pricing in particular, does not produce new telecommunications investment patently "founders on fact."⁵ In the Court's own words, it "suffices to say that a regulatory scheme that can boast such substantial competitive capital

None of these reports contains original research related to this issue. The decline in investment is most frequently attributed to UNE rates. For a thorough analysis of UNE rates and their relation to Bell costs, see T. R. Beard and C. C. Klein, *Bell Companies as Profitable Wholesale Firms: The Economic Implications of UNE-P*, PHOENIX CENTER POLICY PAPER NO. 17 (Nov. 2002); T. R. Beard and G. S. Ford, *What Determines Wholesale Prices for Network Elements in Telephony? An Econometric Evaluation*, PHOENIX CENTER POLICY PAPER NO. 16 (Sept. 2002); and T. R. Beard, G. S. Ford, and C. C. Klein, *The Financial Implications of the UNE-Platform: A Review of the Evidence*, COMMLAW CONSPICUOUS (forthcoming Fall 2003) [papers are available at www.phoenix-center.org and www.telepolicy.com].

⁴ These studies typically rely on investment analysts' estimates and forecasts of year-to-year changes in investment by particular telecommunications firms (or groups of such firms). More importantly, these reports ignore a basic economic fundamental: absent competitive pressure, it will be a fool's errand to think that a Bell monopolist will ever on its own initiative invest in new facilities beyond those minimally necessary to ensure that quality of service obligations are barely met (and sometimes not even that). See, e.g., TR STATE NEWSWIRE, *New York – PSC Orders Audit, Suspends Pricing Flexibility for Verizon* (19 June 2003); *Qwest Sustains Service Quality Improvements but Faces \$725,000 in Potential Fines for Past Violations*, Oregon Public Service Commission Press Release 2001-008 (February 16, 2001); *Ameritech Under More Scrutiny*, THE DIGEST (Dec. 12, 2001); *Pac Bell Faces Fines*, THE DIGEST (Dec. 12, 2001); Opinion & Order, Ohio Public Service Commission 99-0938-TP-COI (July 20, 2000); Mark Harrington, *State: Verizon's Service Declining*, NEWSDAY.COM (May 23, 2003); see also, PHOENIX CENTER POLICY BULLETIN NO. 3, *The Broadband Loophole: Is Symmetrical Regulation in the Face of Asymmetrical Market Power Good Public Policy?* (19 March 2003) (<http://www.phoenix-center.org/PolicyBulletin/PolicyBulletinNo3.pdf>).

⁵ *Supra* n. 1 at 1675.

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spending over a 4-year period is not easily described as an unreasonable way to promote competitive investment in facilities.”⁶ Equally as important, the Majority in *Verizon* found that the evidence does not support Justice Breyer’s assertion in his dissent that TELRIC will stifle incumbents’ incentive either to innovate or to invest in new elements. As both the Majority and Justice Breyer in his dissent noted, incumbent Bell monopolies have invested over \$100 billion since the passage of the 1996 Act, thus affirming “the commonsense conclusion that so long as TELRIC brings about some competition, the incumbents will continue to have incentives to invest and to improve their services to hold on to their existing customer base.”⁷

II. Analysis

Figure 1 displays real investment by telecommunications carriers between the years 1980 and 2001 (2002 data is not yet available).⁸ Plainly, investment by telecommunications firms skyrocketed after the passage of the 1996 Act.⁹ From 1980 through 1995, investment by telecommunications firms grew at an annual rate of 2.8%, with average investment level of about \$38.8 billion.¹⁰ After the 1996 Act, investment by telecommunications firm has grown at an average annual rate of 22.3%, with \$95.3 billion invested annually (on average) for a total of about \$572 billion during this time. Based on the difference between actual (\$572 billion) and forecasted levels of investment (\$305 billion), the 1996 Act is estimated to have generated \$267 billion in additional telecommunications investment from 1996 through 2001.¹¹ The government

⁶ *Id.* at 1675-76.

⁷ *Id.* at 1676, n. 33.

⁸ For the computation of real investment (versus nominal), the base year is 1996.

⁹ Recent econometric analysis indicates that investment by telecommunications firms *does not cause* economic growth, but *is caused by* economic growth. See R. O. Beil, G. S. Ford, and J.D. Jackson, *On the Relationship between Telecommunications Investment and Economic Growth in the United States* (June 2003) (www.telepolicy.com). Some research suggests telecommunications and/or information technology investment contributes positively to Gross Domestic Product and productivity, but these studies do not focus solely on investment by telecommunications firms and typically evaluate the effects of capital stock rather than investment. See, e.g., D. W. Jorgenson, *Information Technology and the U.S. Economy*, 91 AMERICAN ECONOMIC REVIEW 1 32 (2001) and S. D. Oliner and D. E. Sichel, *The Resurgence of Growth in the Late 1990s: Is Information Technology the Story?*, 14 JOURNAL OF ECONOMIC PERSPECTIVES 3-22 (2000). Investment by telecommunications firms represents only 16% of total IT investment (based on BEA data).

¹⁰ Piecewise regression confirms that the pre- and post-Act investment levels and growth rates are statistically different. The regression estimates pre- and post-Act growth rates of 2.8% and 22.3% (coefficients 0.028 and 0.194 with statistically significant t-statistics of 7.51 and 5.97, respectively). For a simple explanation of piecewise regression, see R. S. Pindyck and D. L. Rubinfeld, *ECONOMETRIC MODELS & ECONOMIC FORECASTS* (1991), p. 118.

¹¹ Forecast values for the post-Act period are computed using a linear time trend. If a one-period lag model with drift is used to forecast the post-Act levels of investment, the contribution of the Act to investment is \$260 billion. Alternate forecast methods do not produce meaningfully different results, since the linear trend is a good approximation of pre-Act investment levels.

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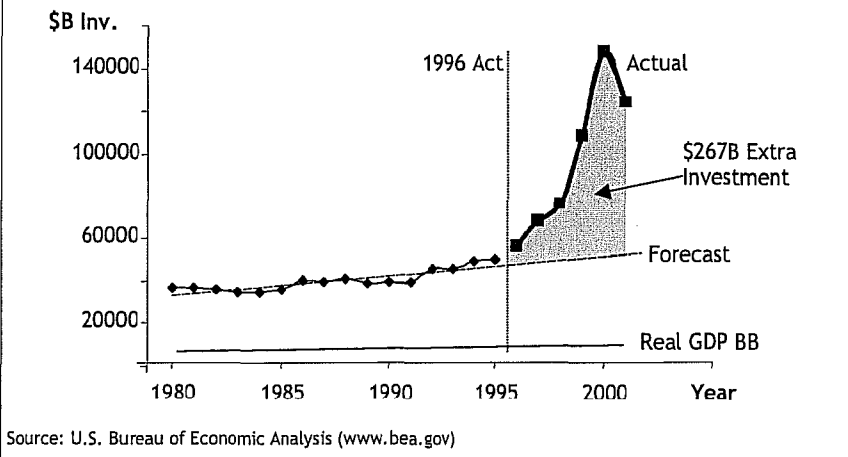
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data provides no support for the claim that the 1996 Act reduced investment by telecommunications firms.

Figure 1. Investment by Telecommunications Firms Before and After the 1996 Telecommunications Act



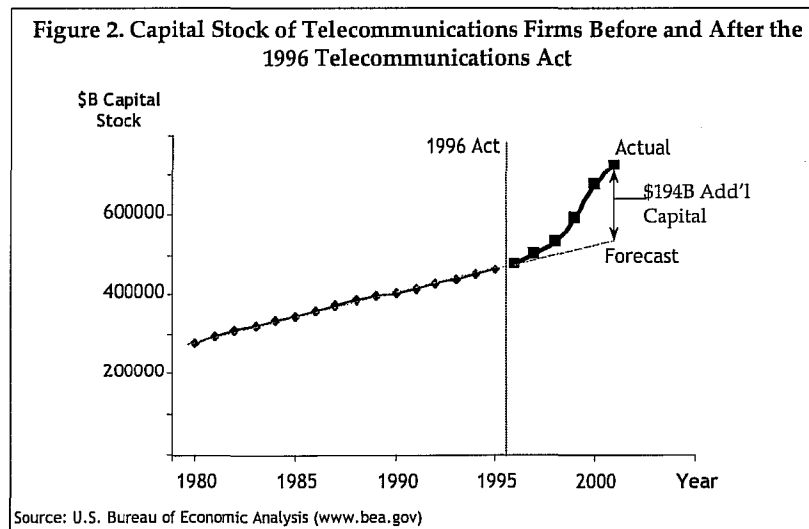
Beil *et al.* (2003) find that growth in the economy *causes* investment in the telecommunications sector (but investment by telecommunications firms *does not cause* economic growth).¹² Thus, an interesting question is whether or not higher economic growth in the post-1996 Act period explains the unprecedented rise in investment by telecommunications firms. An analysis of the growth rate of Gross Domestic Product ("GDP") indicates that pre- and post-1996 Act GDP growth rates are not different, suggesting that economic growth is not responsible for the increase in telecommunications investment.¹³ Real GDP (in billions) is illustrated in Figure 1, and it is apparent that no dramatic shift in GDP occurs between the pre- and post-Act periods.

The increased investment in telecommunications firms following the 1996 Act naturally resulted in a rise in the (real) capital stock of telecommunications firms, as shown in Figure 2.

¹² Beil *et al.* (2003), *supra* n. 3.

¹³ GDP growth averaged about 3% over the period and growth was not statistically different between the pre- and post-Act periods. Including GDP in a regression of investment growth does not alter the result that investment by telecommunications firm rose sharply after the Act. GDP and the time trend are highly correlated ($\rho = 0.991$), so neither the pre-Act growth rate and GDP are statistically significant in a regression indicating both variables (the post-1996 Act growth rate is, however). Both the pre- and post-1996 Act growth rates in investment are positive and statistically significant relative to GDP, however, with post-Act growth exceeding pre-Act growth by 400%.

Prior to the 1996 Act, the capital stock of telecommunications firm grew on average at an annual rate of 3.0%, whereas after the 1996 Act the annual increase in the stock is 7.9%.¹⁴ Based on a 1980-1995 historical trend, the 1996 Act led to a \$194 billion increase in the capital stock by the end of 2001. The capital stock has not declined post-Act, and remains substantially above trend (about 36% above the forecast level).



III. Conclusion

To borrow a pun, reports of the death of telecommunications investment are greatly exaggerated. A simple examination of the data reveals that investment by telecommunications firms rose sharply after the 1996 Act, and the capital stock of these firms remains substantially above forecasted levels. These considerable changes in investment behavior are confirmed with statistical analysis, though visual inspection is compelling enough.

Unfortunately, the sluggish U.S. economy will continue to slow investment across many, if not most, sectors of the economy, and telecommunications firms will no doubt be affected. Nevertheless, with the introduction of competition, along with its constant companion innovation, a reasonable expectation is that investment by telecommunications firms will continue to be above historical levels.

¹⁴ Piecewise regression confirms that the pre- and post-1996 Act changes in the capital stock are statistically different (t-statistics of the estimated coefficients are 28.4 and 12.0, respectively).

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